

Attorney's Docket No.:06666-077001

Amendments to the Specification:

Please replace the paragraph beginning at page 6, line 5 with the following amended paragraph:

In one aspect, decoding an encoded signal (for example, a turbo encoded signal, a block encoded signal or the like) can be performed, e.g., in a wireless communications system, by demodulating the received encoded signal to produce soft information, and iteratively processing the soft information with one or more soft-in / soft-output (SISO) modules. At least one of the SISO modules uses a tree structure to compute forward and backward state metrics, for example, by performing recursive marginalization-combining operations. Marginalization-combining operations are any pair of operations that satisfy the commutative semi-ring properties. A commutative semi-ring is a set K, together with two binary operations called "+" and "*", which satisfy the following three axioms: (1) the operation "+" is associative and commutative and there is an additive identity element called "0" such that $k+0=0$ for all k in K (that makes $(K,+)$ a commutative monoid); (2) the operation "*" is associative and commutative and there is a multiplicative identity element called "1" such that $k*1=k$ for all k in K (that makes $(K,*)$ a commutative monoid); and (3) the distributive law holds, i.e., $(a*b) + (a*c) = a * (b+c)$. Marginalization-combining operations, which in various embodiments include $[(s)]$ min-sum operations, min*-sum operations (where $\min^* = \min(x,y) - \ln(1 + e^{-|x-y|})$), sum-product operations, and/or max-product operations.